

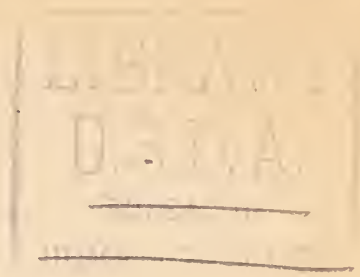
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U. S. DEPARTMENT OF AGRICULTURE  
BUREAU OF HOME ECONOMICS  
Washington, D. C.

ACID-FORMING FOODS AND ALKALINE OR BASE-FORMING FOODS.

The attached lists of acid-forming and base-forming foods have been prepared for individuals who wish to select diets with reference to their potential acidity or alkalinity. The tissues and fluids of the body are normally alkaline but an over-abundance of acid-forming elements in the diet may lead to a condition of acidosis. The general tendency in this country seems to be toward diets containing too large a proportion of foods which are acid-formers. For these reasons it is important to emphasize the potentially basic foods, and limit the consumption of foods that are acid-forming.

Nearly all of the vegetables and fruits that have been studied are alkaline or base-forming. Cranberries, prunes, and some types of plums are among the exceptions. These fruits produce an alkaline ash, but they contain substances that form hippuric acid in the body and act as acid-forming foods. Most legumes that have been studied produce an alkaline ash, but peanuts and lentils have an acid ash. Meats, fish, poultry, and eggs, and also cereals and their products are among the acid-forming foods. Fats and sugars are considered as neutral.

Several foods, such as oranges, grapefruit, and tomatoes, that are acid in taste because they contain organic acids, are counted as alkaline because of their effect upon the reaction of the blood and tissues after the acids are used up in the body. Although they are acid when they go into the stomach they have the effect of reducing the acidity of the body fluids, because the base-forming elements are present in excess of the acid-forming elements.

There are, however, conditions in which a bland diet, low in organic acids, is recommended, especially when it is necessary to avoid irritation in the stomach. In such cases the attached lists are not applicable since they are based on the potential effect of the food in the body rather than on its actual acid content before it is eaten. Information on organic acid content of fruits is included in Circular 50, "Proximate composition of fresh fruits", which is published by this bureau.



UNITED STATES DEPARTMENT OF AGRICULTURE  
Bureau of Home Economics  
Washington, D. C.

ALKALINE OR BASE-FORMING FOODS \*

Almonds	Chard	Pears
Apples	Chestnuts	Peas
Apricots	Cucumbers	Pineapple
Asparagus	Grapes	Potatoes
Bananas	Lemons	Radishes
Beans, common or kidney, seeds	Lettuce	Raisins
Beans, pods, snap or string	Milk	Rutabagas
Beans, Lima	Muskmelon	Spinach
Beets	Oranges	Sweetpotatoes
Cabbage	Parsnips	Tomatoes
Carrots	Peaches	Turnips
Cauliflower		Watermelon

\* This list is based on information taken from the following sources:

- (1) Sansum, W. D.  
1930. The normal diet (3rd ed., revised). St. Louis. The  
C. V. Mosby Company. 134 p.
- (2) Sherman, H. C.  
1924. Food products (2nd ed., revised). New York. The  
Macmillan Company. 687 p.
- (3) Sherman, H. C., and Gettler, A. O.  
1912. The balance of acid-forming and base-forming elements  
in foods, and its relation to ammonia metabolism.  
Jour. Biol. Chem. vol. 11, pp. 323-8.





# ACID-FORMING FOODS \*

Bread, white	Meat, beef, lean
Bread, whole wheat	Meat, chicken
Cheese, Cheddar **	Meat, frog
Corn, sweet	Meat, lamb or mutton **
Corn meal **	Meat, pork, lean
Crackers	Meat, rabbit
Cranberries ***	Meat, veal
Eggs	Oatmeal
Egg white	Oysters
Egg yolk	Peanuts
Fish, haddock	Prunes, plums ***
Fish, pike	Rice
Lentils **	Wheat, entire
	Wheat flour, white

\* This list is based on information taken from the following sources:

(1) Sansum, W. D.

1930. The normal diet (3rd ed., revised). St. Louis. The  
C. V. Mosby Company. 154 p.

(2) Sherman, H. C.

1926. Chemistry of food and nutrition (3rd ed.) New York.  
The Macmillan Company. 636 p.

(3) Sherman, H. C., and Gettler, A. O.

1912. The balance of acid-forming and base-forming elements  
in foods, and its relation to ammonia metabolism.  
Jour. Biol. Chem. vol. 11, pp. 323-8.

\*\* These foods are not listed in any of the sources given, but they  
belong in this group of foods according to calculations from  
mineral tables in "Chemistry of food and nutrition", H. C. Sherman.

\*\*\* Although these foods yield an alkaline ash they are classified as  
acid-forming foods because cranberries, prunes, and some types of  
plums form hippuric acid in the body and increase the acidity of  
the urine.

